

## ABSTRACT

The invention is a method for producing Ti or Ti alloys through reduction of  $\text{TiCl}_4$  by Ca, which can produce high-purity Ti metals or Ti alloys. A molten salt containing  $\text{CaCl}_2$  and having Ca dissolved therein is held in a reactor cell, electrolysis is performed in the molten salt in the reactor cell, and particulate Ti or Ti alloys are generated in the molten salt by supplying a metallic chloride containing  $\text{TiCl}_4$  to the molten salt so as to react with Ca generated on a cathode electrode side by the electrolysis, allowing enhancement of a feed rate of  $\text{TiCl}_4$  as a raw material of Ti, and also a continuous operation. Further, the method by the invention eliminates the need of the separate handling of Ca, because a reducing reaction and an electrolytic reaction can simultaneously proceed in the reactor cell to replenish Ca, consumed in the reducing reaction, by the electrolytic reaction. Accordingly, the production method by the invention can be used as means for efficiently and economically producing high-purity Ti metals or Ti alloys.